

Health Consultation

FORMER CHAMPAIGN MANUFACTURED GAS PLANT

CHAMPAIGN, CHAMPAIGN COUNTY, ILLINOIS

EPA FACILITY ID: ILN000510264

SEPTEMBER 11, 2008

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia 30333

US EPA RECORDS CENTER REGION 5



421446

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

FORMER CHAMPAIGN MANUFACTURED GAS PLANT SITE

CHAMPAIGN, CHAMPAIGN COUNTY, ILLINOIS

EPA FACILITY ID: ILN000510264

Prepared By:

Illinois Department of Health Services
Office of Environmental and Occupational Toxicology
Under Cooperative Agreement with the
The U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

Purpose

The Illinois Department of Public Health (IDPH) has prepared this health consultation under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The purpose of the health consultation is to evaluate any known or potential adverse human health effects from exposure to off-site contaminants from the former Champaign Manufactured Gas Plant (MGP) in the surface soil of nearby residential areas.

Background and Statement of Issues

Site History

The former Champaign MGP site is in the city of Champaign, Champaign County, Illinois. It is located at 308 North Fifth Street, at the intersection of Hill and Fifth Streets. The site is situated on approximately 2.6 acres in a mixed residential and commercial neighborhood. The site is bounded on the north by the Norfolk and Western Railway, on the east by an abandoned section of North Sixth Street right-of-way (used by foot traffic), on the west by North Fifth Street, and on the south by an alley adjacent to a residential area (Figures 1 and 2).

The former Champaign and Urbana Gas Light Company operated the MGP at this site from about 1869 through the early 1930s. The site remained vacant and unused from the 1950s until the property was sold to American Legion Post 559 in 1979. The "Booster House" was maintained and used intermittently by the American Legion from 1979 until 1991. Illinois Power repurchased the property from the American Legion in 1991 and the site has since remained vacant [1].

As part of a voluntary cleanup program, Illinois Power and subsequently Ameren, conducted studies of the soil and groundwater conditions at the property and surrounding property in 1986, 1990, 1992, 1997, and 2004. The groundwater monitoring wells are sampled quarterly. Although there is groundwater contamination, no one is using this water because the surrounding area is being served by Illinois American Water Company public water supply wells that are more than a mile from the site. In addition, IDPH reviewed site data in 1990 and found no significant human exposure to contaminants from the site at that time.

Community Concerns

The Champaign-Urbana Citizens for Peace and Justice, the Champaign County Health Care Consumers and the University of Illinois Department of Urban and Regional Planning held an informational meeting for the community on December 7, 2007. The primary concern of these groups was the lack of communication between Ameren and the residents.

On January 14, 2008, Ameren and the Illinois Environmental Protection Agency (Illinois EPA) went door to door in the neighborhood to communicate with residents living near the site. Also, a public availability session for the community was held that afternoon and evening at the Salem

Baptist Church on Park Street East. A Site Information Repository has been established with a collection of documents at the Douglass Branch of the Champaign Public Library. Although some community groups have raised concerns regarding a potential connection between the MGP site and cases of neighborhood cancers, IDPH is not aware of any specific health concerns among residents.

On June 5, 2008, the City of Champaign, Ameren and the Illinois EPA held a public meeting at the Douglass Branch of the Champaign Public Library. A presentation was given by Nicholas Schneider of Rapps Engineering and Applied Science, Inc., a consultant hired by the City of Champaign, to explain the planned site cleanup activities.

Site Visit

IDPH staff visited the site on January 14, 2008 and again on June 5, 2008. A 6-foot high chain-link fence topped by rusty barbed wire surrounded the site. New "warning" signs are posted on the fence informing the public to call an 800 telephone number prior to digging. Access to the site is through a locked gate on its western side, off North Fifth Street. The site was vacant, except for one remaining building called the Booster House.

Residential properties exist south of the site along Church Street, west of the site along Hill Street, and north of the site along Washington Street (Figure 2). A hospital parking lot is east of the site.

Discussion

Chemicals of Interest

IDPH compared the results of each off-site surface soil sample with the appropriate screening comparison values to select chemicals for further evaluation for cancer and non-cancer adverse health effects. Chemicals at levels exceeding comparison values or those for which no comparison values exist were selected for further evaluation. The listing of a chemical of interest does not necessarily mean it will cause adverse health effects if exposure occurs. A description of each of the comparison values is found in Attachment 1. Table 1 lists the chemicals of interest and the maximum values detected in off-site residential soil samples. Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs), metals and volatile organic chemicals.

PAHs are the chemicals of interest in the off-site surface soils. PAHs are a group of chemicals found in fossil fuels, products made from fossil fuels, and the combustion products of fossil fuels. The main health concern from exposure to PAHs is cancer. Benzo(a)pyrene (BaP) is one of the PAHs classified as a probable human carcinogen. The U.S. Environmental Protection Agency has developed a relative potency factor approach, where the cancer potency of the other carcinogenic PAHs can be estimated based on their relative potency to BaP. These "BaP equivalents" can then be used to estimate the potential for adverse health effects [2].

Residential and Garden Soil

IDPH reviewed the 0 to 12 inch depth soil sample results from 2004 and 2007 in residential yards and one soil sample from a garden vegetable plot to determine if the levels of contaminants in the soil could cause adverse health effects in exposed individuals. IDPH prefers to have surface soil samples collected from 0 to 3 inches, because people are typically only exposed to the top 3 inches of soil [3].

We estimated exposure to PAHs in residential surface soil based on two exposure scenarios. One was a child contacting and ingesting 150 milligrams (mg) of soil daily while playing in their yard or garden six days per week, 9 months per year for 16 years. The second was for an adult contacting and ingesting 100 mg of soil daily while working in their yard or garden six days a week, 9 months per year, for 40 years. Based on the mixed composition of the garden soil, the elevated levels of PAHs were likely due to the presence of coal and debris rather than the operations of the former MGP [4].

Based on the exposure scenarios used, IDPH found no apparent increased cancer risk for children or adults exposed to the surface soil in any of the residential samples. No other adverse health effects would be expected.

Site Fence Line and Public Alley Soil

During the Comprehensive Site Investigation in 2004, soil samples were collected from the site fence line and the public alley [1]. Samples were collected from 0 to 3 feet in depth. IDPH reviewed the 0 to 1 foot soil sample results to determine if levels of contaminants in the soil could cause adverse health effects in exposed individuals.

The locations of these samples were along the northwestern side of the site. IDPH does not expect children to be frequently playing along the fence line and abandoned public alley north of the railroad tracks because the area is so close to train traffic.

We estimated exposure to PAHs in surface soil from these locations based on two scenarios. One was for a child contacting and ingesting 150 mg of soil daily while playing along the fence line or public alley 1 day per week, 9 months per year for 16 years. The second was for an adult contacting and ingesting 100 mg of soil daily while walking around the fence line and public alley 1 day per week, 9 months per year, for 40 years. Since exposure to this area would be minimal, no apparent increased cancer risk or other adverse health effects would be expected from exposure to the surface soil in these areas around the site. Sources of elevated PAHs in these areas could be site related, from vehicular traffic, or other unknown sources.

Based on the exposure scenarios used, IDPH found no apparent increased cancer risk for children or adults exposed to the surface soil at the site fence line or public alley. No other adverse health effects would be expected.

Child Health Considerations

IDPH recognizes that children are especially sensitive to some contaminants. For that reason, IDPH considered children when evaluating exposures to contaminants in the surface soil of the neighborhood around the site. Children are the most sensitive population considered in this health consultation.

Conclusions

Based on the off-site soil sampling data, IDPH concludes that no apparent health hazard exists for exposure to surface soil in the residential yards, garden plot, site fence line and the public alley that were sampled around the former MGP.

Recommendations and Public Health Action Plan

- ▶ Ameren will conduct further soil and water sampling to determine the extent of PAH contamination.
- ▶ Ameren will conduct, if necessary, soil gas sampling around off-site buildings.
- ▶ IDPH will review the results of additional sampling.
- ▶ IDPH has answered questions about cancer risks and chemical exposure at public availability sessions and will continue to work with the Illinois EPA to respond to any health concerns of the community near the former MGP.

Preparer of Report

Cary Ware
Environmental Health Specialist
Illinois Department of Public Health

References

1. Comprehensive Site Investigation Report for Ameren IP. Champaign former MGP, Champaign, Illinois. Philip Environmental Service Corporation, Columbia, Illinois. June 2007.
2. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. September 1997.
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Table 1. Levels of Contaminants of Interest in Off-site Soil Samples.

	BaP equivalents Maximum level (in ppm)	Location	Comparison Value (in ppm)
Surface Soil Sample (0-1')	8.5	Residential Yard	0.1
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ppm – parts per million

Figure 1. Champaign Manufactured Gas Plant Area Site Location Map

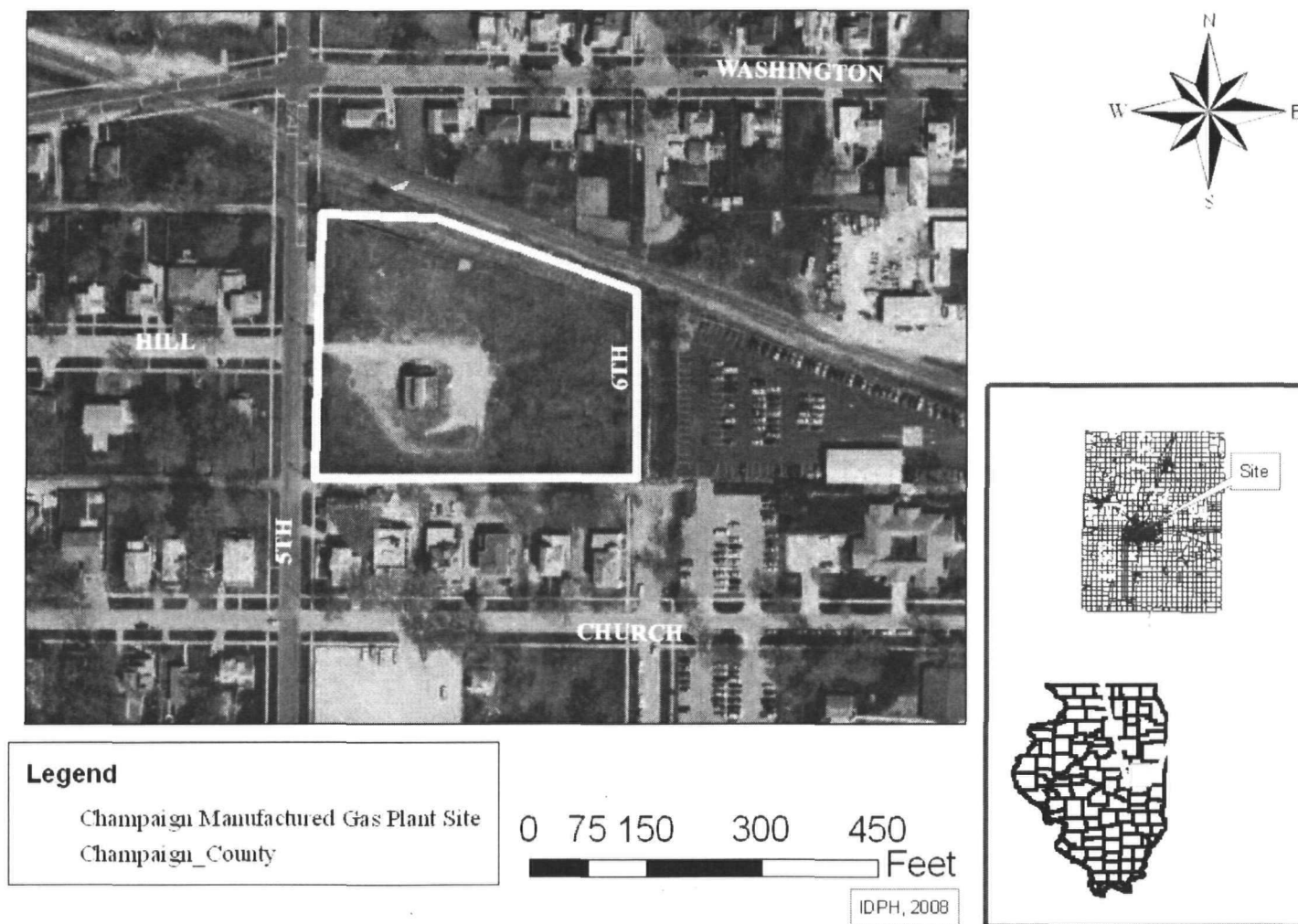
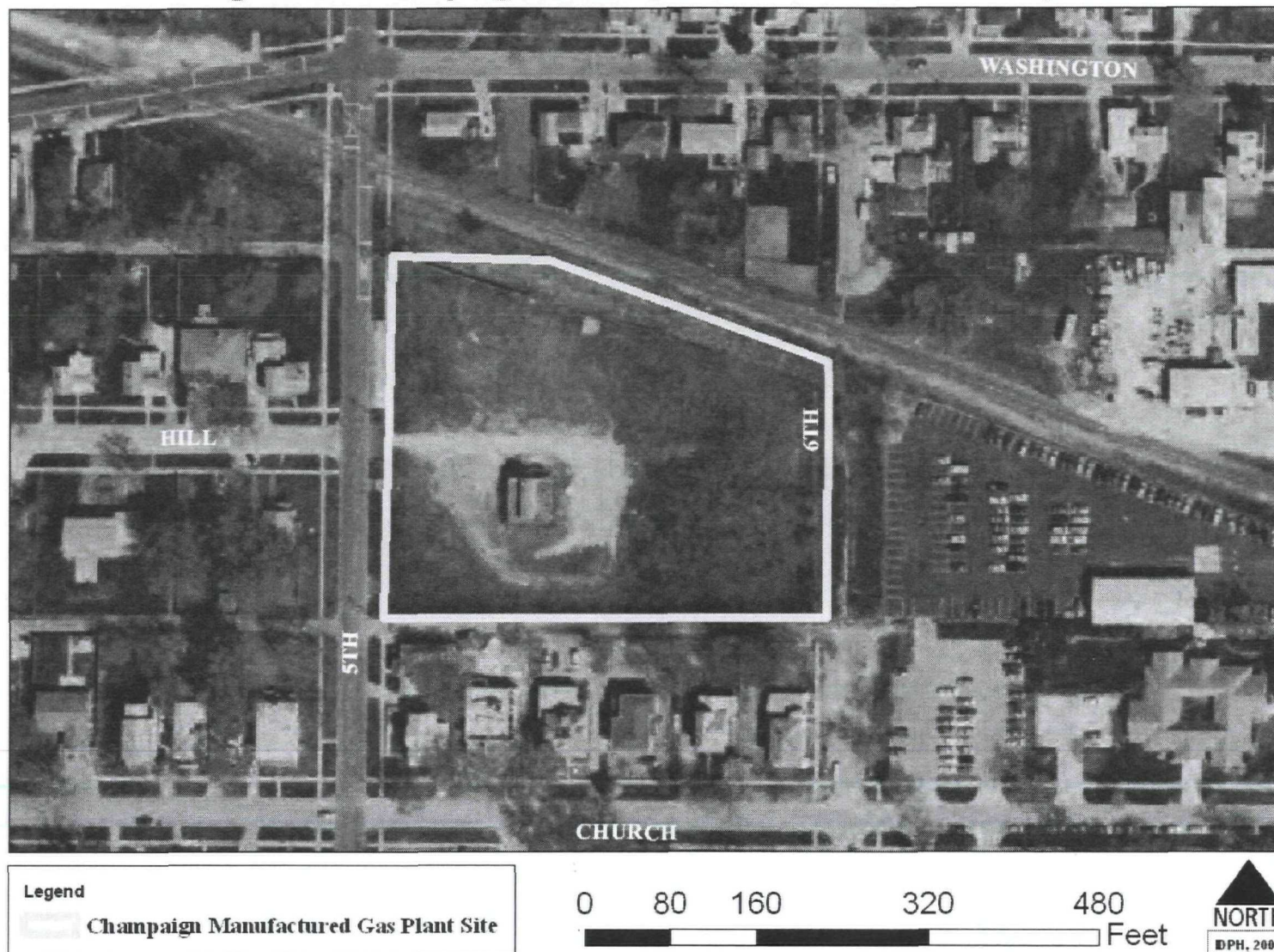


Figure 2. Champaign Manufactured Gas Plant Site Map



Comparison Values Used In Screening Contaminants for Further Evaluation

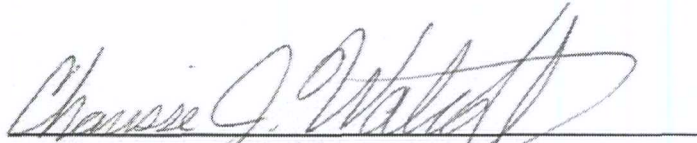
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Reference Dose Media Evaluation Guides (RMEGs) are another type of comparison value derived to protect the most sensitive populations. They do not consider carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population.

Cancer Risk Evaluation Guides (CREGs) are estimated contaminant concentrations based on a probability of one excess cancer in a million persons exposed to a chemical over a lifetime. These are also very conservative values designed to protect sensitive members of the population.

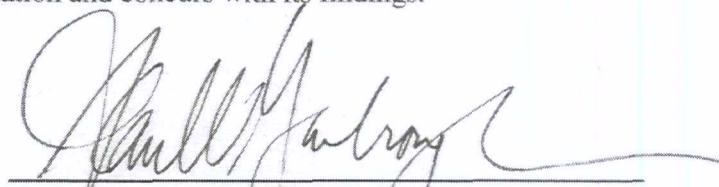
Certification

This Former Champaign Manufactured Gas Plant Site health consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.



Charisse J. Walcott
Technical Project Officer, CAT, CAPEB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.



Alan Yarbrongh
Team Lead, CAT, CAPEB, DHAC, ATSDR



Rod R. Blagojevich, Governor
Damon T. Arnold, M.D., M.P.H., Director

525-535 West Jefferson Street • Springfield, Illinois 62761-0001 • www.idph.state.il.us

DATE: June 3, 2008

TO: Mark Johnson
ATSDR Region 5

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Illinois EPA


Tom Hornshaw
Illinois EPA Toxicity Assessment Unit

Stan Black
Illinois EPA Community Relations

Mike Joyce
USEPA, Community Relations

Lori Muller
USEPA, Project Manager

Director of Environmental Health
Champaign County Health Department

FROM: Jennifer Davis 
Health Assessment Principal Investigator
IDPH-Environmental Toxicology

RE: Former Champaign Manufactured Gas Plant Site
Champaign, Champaign County, Illinois

Please find enclosed a draft of the health consultation for the above-mentioned site. If you wish to make any written comments, please forward them to me **by June 20, 2008**. After all comments have been addressed and needed changes made, the final version of this document will be sent to the Agency for Toxic Substances and Disease Registry for release. You may e-mail comments to Jennifer.A.Davis@illinois.gov.

If you have any questions, please call me at 217-785-3239.

cc: Cary Ware
IDPH Champaign Office

Health Consultation
Former Champaign Manufactured Gas Plant Site
State ID 0190100008
Champaign, Champaign County, Illinois

Comment period ends June 20, 2008.

Prepared by:

Illinois Department of Public Health
Under cooperative agreement with the
Agency for Toxic Substances and Disease Registry

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Preparer of Report

Cary Ware
Environmental Health Specialist
Illinois Department of Public Health

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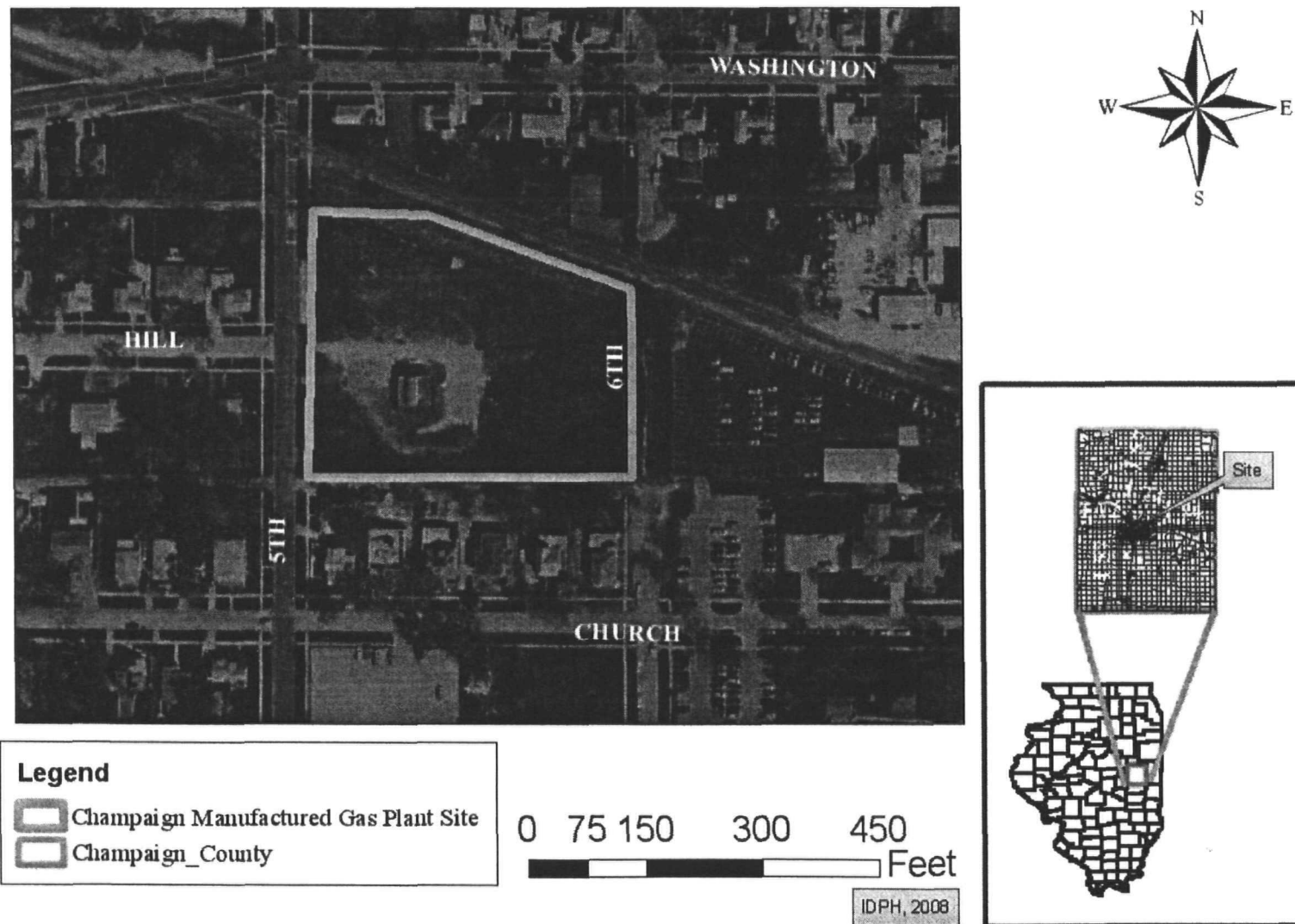
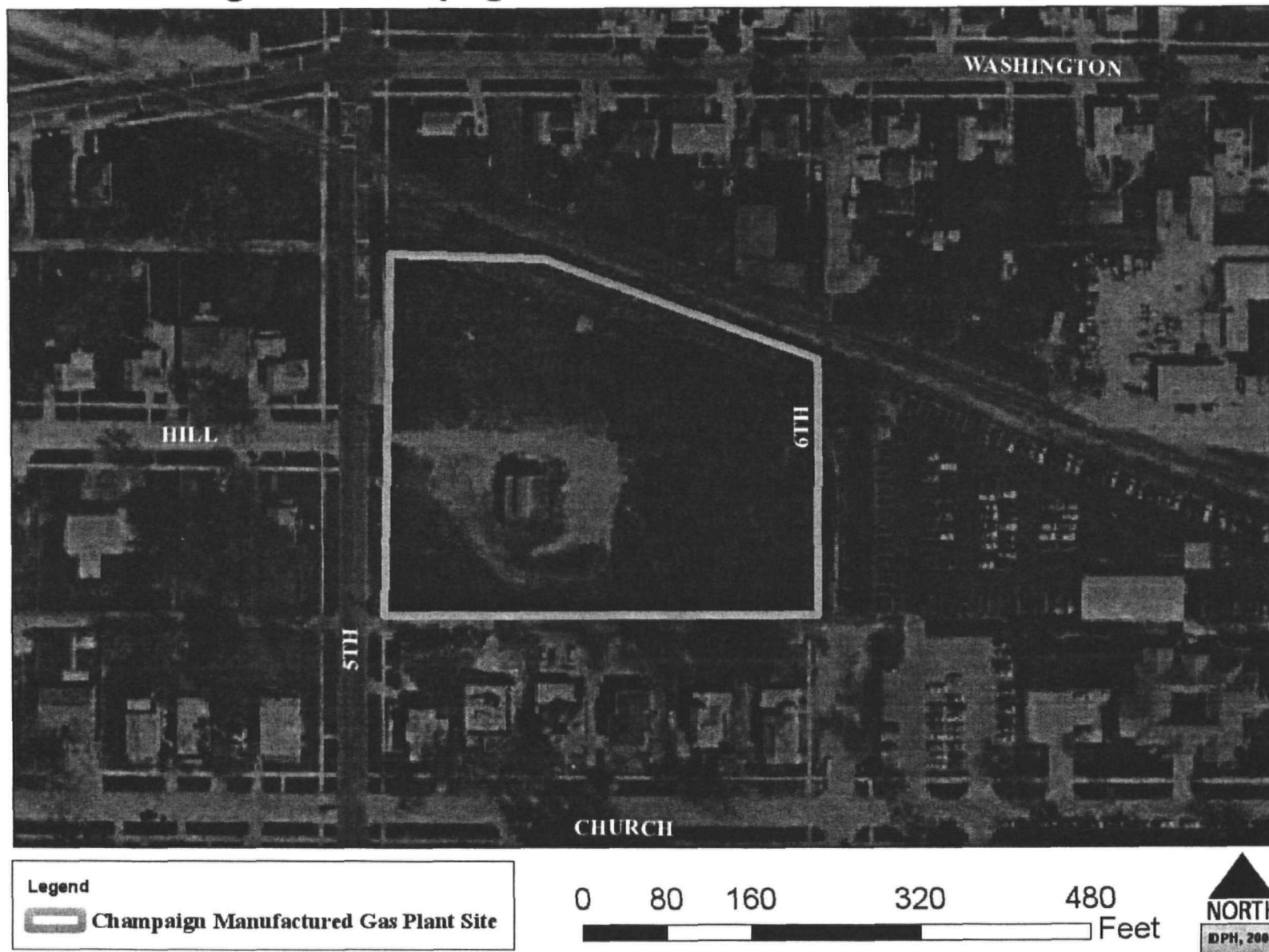


Figure 2. Champaign Manufactured Gas Plant Site Map



Comparison Values Used In Screening Contaminants For Further Evaluation

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BTEX and PaHs - 3 to 10ft.

Soil	UNITS/ DEPTH	B-501 B-501-8 7/13/2004	B-502 B-502-7 7/13/2004	B-503 B-503-10 7/13/2004	B-504 B-504-7 7/13/2004	B-505 B-505-6 7/14/2004	B-506 B-506-7 7/22/2004	B-507 B-507-8 7/21/2004	B-508 B-508-9 7/19/2004	B-509 B-509-8 7/21/2004
		7'-8"	6'-7"	9'-10"	6'-7"	5'-6"	6'-7"	7'-8"	8'-9"	7'-8"
Benzene	(ug/kg)	183	10500	634	20800	14500	11200	3510	2580	4.5
Ethylbenzene	(ug/kg)	41	5000	523	145000	79800	46200	22200	33100	3.8
Toluene	(ug/kg)	<24.6	220	300	10900	3600	740	280	575	1.4
Xylene (total)	(ug/kg)	41	11000	637	140000	69600	33700	16600	24300	12
Acenaphthene	(ug/kg)	50	16000	1600	590000	540000	170000	63000	51000	9800
Acenaphthylene	(ug/kg)	240	2700	320	71000	81000	12000	3600	5800	4700
Anthracene	(ug/kg)	180	12000	1400	330000	180000	71000	24000	22000	7200
Benzo(a)anthracene	(ug/kg)	180	8700	830	170000	140000	33000	9500	12000	9400
Benzo(b)pyrene	(ug/kg)	270	4100	520	130000	140000	35000	12000	10000	8700
Benzo(k)fluoranthene	(ug/kg)	250	18000	630	110000	130000	26000	7900	7900	8800
Benzo(ghi)perylene	(ug/kg)	63	4000	110	<50000	31000	7200	2400	4500	2800
Benzo(k)fluoranthene	(ug/kg)	97	5600	240	<43000	45000	7400	2300	3100	2500
Chrysene	(ug/kg)	170	19000	650	150000	140000	33000	8600	11000	9000
Dibenz(a,h)anthracene	(ug/kg)	<30	1900	45	<44000	10000	2300	720	<3000	<620
Fluoranthene	(ug/kg)	340	17500	1800	320000	240000	78000	25000	23000	18600
Fluorene	(ug/kg)	330	20000	1200	410000	430000	90000	35000	30000	13000
Indeno(1,2,3-cd)pyrene	(ug/kg)	64	4700	130	<47000	35000	6000	2300	3500	2400
Naphthalene	(ug/kg)	<30	86000	18000	2000000	2300000	760000	170000	140000	<880
Phenanthrene	(ug/kg)	38	50000	3500	1100000	620000	250000	77000	64000	37000
Pyrene	(ug/kg)	500	25000	1500	440000	400000	110000	37000	33000	25000

Notes: ug/kg Micrograms per kilogram
 (1) Provisional remediation objective provided by IEPA
 — No remediation objective has been established by the IEPA for this constituent for this exposure route
 <12 Not detected at the level identified
 Analytical result exceeds one or more Tier 1 RO

BTEX and PaHs - 0 to 3 ft.

CONSTITUENT	UNITS	B-513 B-513-2 7/12/2004	B-514 B-514-3 7/22/2004	B-515 B-515-2 7/16/2004	B-516 B-516-3 7/22/2004	B-550 B-550-3 7/20/2004	B-551 B-551-3 7/15/2004	B-553 B-553-3 7/14/2004	B-554 B-554-3 7/15/2004
		1'-2"	2'-3"	1'-2"	2'-3"	2'-3"	2'-3"	2'-3"	2'-3"
Benzene	(ug/kg)	7.6	32.6	4.3	5.1	5.8	972	185	180
Ethylbenzene	(ug/kg)	<1.1	17.4	21.3	5.4	13.6	282	200	256
Toluene	(ug/kg)	3.2	10.3	3	4.5	3.8	244	370	211
Xylene (total)	(ug/kg)	1.8	25.4	26.4	6.5	25.9	276	456	624
Acenaphthene	(ug/kg)	52	<1800	1100	<1800	<12000	3700	8500	<3000
Acenaphthylene	(ug/kg)	100	2600	1900	40000	<13000	14000	26000	9200
Anthracene	(ug/kg)	220	2400	1000	9700	<11000	20000	8400	<2600
Benzo(a)anthracene	(ug/kg)	800	4600	2200	42000	<9400	52000	10000	<2400
Benzo(a)pyrene	(ug/kg)	820	5900	4000	120000	<8600	68000	55000	8500
Benzo(b)fluoranthene	(ug/kg)	1300	7600	4400	130000	<8800	83000	50000	8200
Benzo(ghi)perylene	(ug/kg)	310	3800	1300	50000	<11000	28000	26000	8500
Benzo(k)fluoranthene	(ug/kg)	490	2700	1300	36000	<9300	25000	12000	<2400
Chrysene	(ug/kg)	930	4600	2800	62000	<9900	51000	19000	4300
Dibenz(a,h)anthracene	(ug/kg)	120	<1500	350	14000	<9500	9000	5000	<2500
Fluoranthene	(ug/kg)	1700	6300	3300	27000	19000	63000	17000	4600
Fluorene	(ug/kg)	51	1900	720	4000	12000	7100	7800	<2900
Indeno(1,2,3-cd)pyrene	(ug/kg)	400	3400	1200	47000	<10000	33000	21000	4400
Naphthalene	(ug/kg)	52	<2200	1800	10000	<14000	8400	2200	<3500
Phenanthrene	(ug/kg)	840	6500	3300	8700	14000	47000	9400	3300
Pyrene	(ug/kg)	1300	8600	5700	67000	21000	76000	27000	8500

Notes: ug/kg Micrograms per kilogram
 (1) Provisional remediation objective provided by IEPA
 — No remediation objective has been established by the IEPA for this constituent for this exposure route
 <12 Not detected at the level identified
 Analytical result exceeds one or more Tier 1 RO

Underground Monitoring Well - On-Site Ten Years of Testing

Monitoring Well	Sampling Date	Concentration ug/L					Total BTEX	Naphthalene			
		Benzene 5	Ethylbenzene 700	Toluene 1,000	Xylenes (Total) 10,000						
Tier 1 Remedial Objective											
UMW-114	02/03/97	1,430	1,330	47.3	J	822	3429	1,700			
	05/08/97	1,410	1,170	27.4		586	3193	2,620			
	08/05/97	1,220	1,240	53.0		573	3066	1,800			
	11/04/97	1,400	1,310	52.6		627	3390	2,300			
	02/03/98	1,220	1,100	117		646	3082	2,200			
	02/03/98	1,200	1,060	118		618	2996	2,210			
	05/05/98	1,170	1,280	107.0		759	3316	3,210/5,810**			
	08/06/98	1,060	1,260	ND(50)		2,140	4430	4,000			
	11/11/98	908	769	ND(100)		709	2476	3,050			
	03/25/99	911	888	116.0		675	2590	4,190			
	06/16/99	1,180	1,260	J		166.0	780	J	3386	2,180	
	09/14/99	1,270	1,330			201.0	834		3635	3,350	
	12/08/99	1,140	1,280			242.0	862		3524	3,170	
	03/02/00	930	811			186.0	572		2499	3,430	
	06/15/00	1,080	ND(50)			ND(50)	ND(50)		1080	5,740	
	09/29/00	886	1,080			169.0	669		2804	3,750	
	12/27/00	859	983			171.0	720		2740	2,890	
	03/08/01	841	1,220			212.0	766		3039	2,370	
	06/25/01	974	1,180			119.0	666		2939	2,410	
	09/06/01	764	813			98.0	J	526		2296	765
	12/06/01	910	1,190			196.0	733		3029	3,290	
	03/06/02	810	1,160			197.0	849		3016	2,270	
	06/04/02	804	1,250			215.0	844		3113	4,400	
	09/04/02	557	843			110.0	J	522		2032	3,960
	12/05/02	832	1,220			190.0	J	526		2768	3,250
	03/12/03	703	1,160			150.0	J	727		2740	2,860
06/12/03	825	1160			173		772		2931	3540	
06/12/03	786	1080			160		729		2754	3,54	
03/02/04	754	1040			<250		481		2275	4480	
05/25/04	790	1230			153		861		2851	3669	

Underground Monitoring Well - Offsite 10 Years of Testing

Monitoring Well	Sampling Date	Concentration ug/L							
		Benzene 5	Ethylbenzene 700	Toluene 1,000	Xylenes (Total) 10,000	Total BTEX	Naphthalene 140		
Tier 1 Remedial Objective									
UMW-107	02/04/97	2,820	79.5	J	ND(125)	114	J	3014	75.3
	02/04/97 d	3,060	84.8	J	ND(125)	120	J	3265	82.1
	05/07/97	2,050	67.3		14.2	114		2246	90.6
	08/05/97	2,460	79.8		15.4	111	J	2666	92.0
	11/04/97	3,430	131		22.7	193		3777	130
	02/02/98	2,910	106		19.6	160		3196	75.5
	05/04/98	2,130	72.8		ND(50)	164		2367	95
	05/04/98 d	1,870	61.6		ND(50)	139		2071	78
	08/06/98	2,260	60.7		ND(50)	120		2441	ND(5)
	11/10/98	4,110	146		ND(50)	220		4476	239
	03/25/99	2,320	66.2		ND(50)	134		2520	ND(250)
	06/16/99	1,220	ND(100)		ND(100)	144		1364	30
	09/14/99	1,480	47		ND(20)	77.2		1604	265
	12/08/99	3,160	136		ND(50)	209		3505	164
	03/02/00	1,910	80.8		ND(20)	87.1		1978	152
	06/15/00	652	115		15.4	179		960	212
	09/26/00	4,840	236		ND(125)	370		5446	702
	12/27/00	2,040	89.5		11.5	166		2307	207
	12/27/00 d	2,100	87.4		11.9	169		2368	198
	03/08/01	329	ND(125)		ND(125)	68		397	38.1
	06/25/01	1,170	58.9		7.6	134		1371	70.4
	09/06/01	3,440	127		ND(125)	173		3740	172
	12/06/01	2,110	70	J	ND(125)	120	J	2300	167
	12/06/01 d	1,630	103		11.1	190		1934	154
	03/06/02	800	52.9		5.4	119		977	35.2
	06/04/02	764	44.0		7.3	103		964	65.2
	09/06/02	3,440	127		ND(125)	173		3740	172
	12/06/02	2,110	70	J	ND(125)	120	J	2300	167
	12/06/02 d	1,630	103		11.1	190		1934	154
	03/06/03	800	52.9		5.4	119		977	35.2
	06/04/03	764	44.0		7.3	103		964	65.2
	09/06/03	3,440	127		ND(125)	173		3740	172
	12/06/03	2,110	70	J	ND(125)	120	J	2300	167
	12/06/03 d	1,630	103		11.1	190		1934	154
	03/06/04	800	52.9		5.4	119		977	35.2
	06/04/04	764	44.0		7.3	103		964	65.2
09/06/04	3,440	127		ND(125)	173		3740	172	
12/06/04	2,110	70	J	ND(125)	120	J	2300	167	
12/06/04 d	1,630	103		11.1	190		1934	154	
03/06/05	800	52.9		5.4	119		977	35.2	
06/04/05	764	44.0		7.3	103		964	65.2	
09/06/05	3,440	127		ND(125)	173		3740	172	
12/06/05	2,110	70	J	ND(125)	120	J	2300	167	
12/06/05 d	1,630	103		11.1	190		1934	154	
03/06/06	800	52.9		5.4	119		977	35.2	
06/04/06	764	44.0		7.3	103		964	65.2	
09/06/06	3,440	127		ND(125)	173		3740	172	
12/06/06	2,110	70	J	ND(125)	120	J	2300	167	
12/06/06 d	1,630	103		11.1	190		1934	154	
03/06/07	800	52.9		5.4	119		977	35.2	
06/04/07	764	44.0		7.3	103		964	65.2	
09/06/07	3,440	127		ND(125)	173		3740	172	
12/06/07	2,110	70	J	ND(125)	120	J	2300	167	
12/06/07 d	1,630	103		11.1	190		1934	154	
03/06/08	800	52.9		5.4	119		977	35.2	
06/04/08	764	44.0		7.3	103		964	65.2	
09/06/08	3,440	127		ND(125)	173		3740	172	
12/06/08	2,110	70	J	ND(125)	120	J	2300	167	
12/06/08 d	1,630	103		11.1	190		1934	154	
03/06/09	800	52.9		5.4	119		977	35.2	
06/04/09	764	44.0		7.3	103		964	65.2	
09/06/09	3,440	127		ND(125)	173		3740	172	
12/06/09	2,110	70	J	ND(125)	120	J	2300	167	
12/06/09 d	1,630	103		11.1	190		1934	154	
03/06/10	800	52.9		5.4	119		977	35.2	
06/04/10	764	44.0		7.3	103		964	65.2	
09/06/10	3,440	127		ND(125)	173		3740	172	
12/06/10	2,110	70	J	ND(125)	120	J	2300	167	
12/06/10 d	1,630	103		11.1	190		1934	154	
03/06/11	800	52.9		5.4	119		977	35.2	
06/04/11	764	44.0		7.3	103		964	65.2	
09/06/11	3,440	127		ND(125)	173		3740	172	
12/06/11	2,110	70	J	ND(125)	120	J	2300	167	
12/06/11 d	1,630	103		11.1	190		1934	154	
03/06/12	800	52.9		5.4	119		977	35.2	
06/04/12	764	44.0		7.3	103		964	65.2	
09/06/12	3,440	127		ND(125)	173		3740	172	
12/06/12	2,110	70	J	ND(125)	120	J	2300	167	
12/06/12 d	1,630	103		11.1	190		1934	154	
03/06/13	800	52.9		5.4	119		977	35.2	
06/04/13	764	44.0		7.3	103		964	65.2	
09/06/13	3,440	127		ND(125)	173		3740	172	
12/06/13	2,110	70	J	ND(125)	120	J	2300	167	
12/06/13 d	1,630	103		11.1	190		1934	154	
03/06/14	800	52.9		5.4	119		977	35.2	
06/04/14	764	44.0		7.3	103		964	65.2	
09/06/14	3,440	127		ND(125)	173		3740	172	
12/06/14	2,110	70	J	ND(125)	120	J	2300	167	
12/06/14 d	1,630	103		11.1	190		1934	154	
03/06/15	800	52.9		5.4	119		977	35.2	
06/04/15	764	44.0		7.3	103		964	65.2	
09/06/15	3,440	127		ND(125)	173		3740	172	
12/06/15	2,110	70	J	ND(125)	120	J	2300	167	
12/06/15 d	1,630	103		11.1	190		1934	154	
03/06/16	800	52.9		5.4	119		977	35.2	
06/04/16	764	44.0		7.3	103		964	65.2	
09/06/16	3,440	127		ND(125)	173		3740	172	
12/06/16	2,110	70	J	ND(125)	120	J	2300	167	
12/06/16 d	1,630	103		11.1	190		1934	154	
03/06/17	800	52.9		5.4	119		977	35.2	
06/04/17	764	44.0		7.3	103		964	65.2	
09/06/17	3,440	127		ND(125)	173		3740	172	
12/06/17	2,110	70	J	ND(125)	120	J	2300	167	
12/06/17 d	1,630	103		11.1	190		1934	154	
03/06/18	800	52.9		5.4	119		977	35.2	
06/04/18	764	44.0		7.3	103		964	65.2	
09/06/18	3,440	127		ND(125)	173		3740	172	
12/06/18	2,110	70	J	ND(125)	120	J	2300	167	
12/06/18 d	1,630	103		11.1	190		1934	154	
03/06/19	800	52.9		5.4	119		977	35.2	
06/04/19	764	44.0		7.3	103		964	65.2	
09/06/19	3,440	127		ND(125)	173		3740	172	
12/06/19	2,110	70	J	ND(125)	120	J	2300	167	
12/06/19 d	1,630	103		11.1	190		1934	154	
03/06/20	800	52.9		5.4	119		977	35.2	
06/04/20	764	44.0		7.3	103		964	65.2	
09/06/20	3,440	127		ND(125)	173		3740	172	
12/06/20	2,110	70	J	ND(125)	120	J	2300	167	
12/06/20 d	1,630	103		11.1	190		1934	154	
03/06/21	800	52.9		5.4	119		977	35.2	
06/04/21	764	44.0		7.3	103		964	65.2	
09/06/21	3,440	127		ND(125)	173		3740	172	
12/06/21	2,110	70	J	ND(125)	120	J	2300	167	
12/06/21 d	1,630	103		11.1	190		1934	154	
03/06/22	800	52.9		5.4	119		977	35.2	
06/04/22	764	44.0		7.3	103		964	65.2	
09/06/22	3,440	127		ND(125)	173		3740	172	
12/06/22	2,110	70	J	ND(125)	120	J	2300	167	
12/06/22 d	1,630	103		11.1	190		1934	154	
03/06/23	800	52.9		5.4	119		977	35.2	
06/04/23	764	44.0		7.3	103		964	65.2	
09/06/23	3,440	127		ND(125)	173		3740	172	
12/06/23	2,110	70	J	ND(125)	120	J	2300	167	
12/06/23 d	1,630	103		11.1	190		1934	154	
03/06/24	800	52.9		5.4	119		977	35.2	
06/04/24	764	44.0		7.3	103		964	65.2	
09/06/24	3,440	127		ND(125)	173		3740	172	
12/06/24	2,110	70	J	ND(125)	120	J	2300	167	
12/06/24 d	1,630	103		11.1	190		1934	154	
03/06/25	800	52.9		5.4	119		977	35.2	
06/04/25	764	44.0		7.3	103		964	65.2	
09/06/25	3,440	127		ND(125)	173		3740	172	
12/06/25	2,110	70	J	ND(125)	120	J	2300	167	
12/06/25 d	1,630	103		11.1	190		1934	154	
03/06/26	800	52.9		5.4	119		977	35.2	
06/04/26	764	44.0		7.3	103		964	65.2	
09/06/26	3,440	127		ND(125)	173		3740	172	
12/06/26	2,110	70	J	ND(125)	120	J	2300	167	
12/06/26 d	1,630	103		11.1	190		1934	154	
03/06/27	800	52.9		5.4	119		977	35.2	
06/04/27	764	44.0		7.3	103		964	65.2	
09/06/27	3,440	127		ND(125)	173		3740	172	
12/06/27	2,110	70	J	ND(125)	120	J	2300	167	
12/06/27 d	1,630	103		11.1	190		1934	154	
03/06/28	800	52.9		5.4	119		977	35.2	
06/04/28	764	44.0		7.3	103		964	65.2	
09/06/28	3,440	127		ND(125)	173		3740	172	
12/06/28	2,110	70	J	ND(125)	120	J	2300	167	
12/06/28 d	1,630	103							

Heavy Metals

Tier 1 Remediation Objectives

CONSTITUENT	UNITS/DEPTH	B-501 B-501.2 7/13/2004	B-502 B-502.3 7/13/2004	B-503 B-503.3 7/13/2004	B-504 B-504.3 7/13/2004	B-505 B-505.3 7/14/2004	B-506 B-506.3 7/22/2004
		1'-2'	2'-3'	2'-3'	2'-3'	2'-3'	2'-3'
Arsenic	(mg/kg)	0.28	58.5	8.31	15.4	4.5	14.7
Barium	(mg/kg)	143	58.3	99.6	152	27.1	113
Cadmium	(mg/kg)	0.28	0.5	0.3	1.68	0.58	0.14
Chromium	(mg/kg)	19.6	8.81	18.1	13.6	12.6	15.7
COD	(mg/kg)	---	---	---	---	---	---
Copper	(mg/kg)	---	---	---	---	---	---
Cyanide	(mg/kg)	1.38	1.02	11.7	55.5	25.2	2.31
Iron	(mg/kg)	---	---	---	---	---	---
Lead	(mg/kg)	58	21.7	202	221	552	177
Manganese	(mg/kg)	---	---	---	---	---	---
Mercury	(mg/kg)	0.215	0.037	0.167	0.338	0.061	0.695
Nickel	(mg/kg)	---	---	---	---	---	---
Selenium	(mg/kg)	<4.00	<3.85	<4.00	<3.92	<4.00	<3.85
Silver	(mg/kg)	<1.00	<0.96	<1.00	<0.98	<1.00	<0.96
Zinc	(mg/kg)	---	---	---	---	---	---

Notes:

- mg/kg Milligrams per kilogram
 - 1 Provisional remediation objective provided by IEPA
 - No remediation objective has been established by the IEPA for this constituent for this exposure route
 - <12 Not detected at the level identified
 - *
- Based on an average pH of 7.50 for the site
Analytical result exceeds one or more Tier 1 RO

Section 4: Other Signs of Contamination/Causes for Concern

- A. City's neighborhood infrastructure
- B. Historical research
- C. Evidence of possible contamination outside of testing boundary

C. What did they find?

Now we know where the contamination is...

But what are they finding and how bad is it?

Please Note: Anything highlighted with color in the following slides exceeds safety guidelines, and is considered toxic.

BTEX and PaHs - greater than 10ft.

CONSTITUENT	UNIT & DEPTH	B-501 B-501-13 7/13/2004 14'-15'	B-501 B-501-34 7/13/2004 23'-24'	B-502 B-502-12 7/13/2004 11'-12'	B-502 B-502-24 7/21/2004 23'-25'	B-503 B-503-11 7/13/2004 10'-11'	B-503 B-503-19 7/13/2004 18'-19'	B-504 B-504-14 7/13/2004 13'-14'	B-504 B-504-21 7/14/2004 20'-21'
Benzene	(ug/kg)	16400	16	30300	423	233	3000	15100	33100
Ethylbenzene	(ug/kg)	2420	<0.7	25300	<19.2	372	<106	28500	1100
Toluene	(ug/kg)	6900	16	108000	<19.2	120	835	5240	8760
Xylene (total)	(ug/kg)	16900	2	226000	<19.2	458	<106	24000	3460
Acenaphthene	(ug/kg)	39000	<130	36000	<11	<42	5400	49000	22000
Acenaphthylene	(ug/kg)	58000	<140	50000	<11	<42	47000	20000	150000
Anthracene	(ug/kg)	130000	<120	64000	<11	<42	12000	34000	110000
Benzo(a)anthracene	(ug/kg)	67000	<100	54000	<11	<42	31000	17000	59000
Benzo(a)pyrene	(ug/kg)	58000	<96	48000	<11	<42	82000	16000	66000
Benzo(b)fluoranthene	(ug/kg)	72000	<99	56000	<11	<42	89000	12000	80000
Benzo(ghi)perylene	(ug/kg)	22000	<120	13000	<11	<42	23000	4900	15000
Benzo(k)fluoranthene	(ug/kg)	21000	<100	17000	<11	<42	28000	4000	18000
Chrysene	(ug/kg)	64000	<110	55000	<11	<42	34000	16000	62000
Dibenzo(a,h)anthracene	(ug/kg)	7300	<110	5500	<11	<42	5800	1400	4600
Fluoranthene	(ug/kg)	160000	<100	140000	<11	<42	37000	36000	120000
Fluorene	(ug/kg)	120000	<120	120000	<11	<42	13000	49000	120000
Indeno(1,2,3-cd)pyrene	(ug/kg)	24000	<120	17000	<11	<42	21000	4700	15000
Naphthalene	(ug/kg)	920000	<150	680000	26	<42	7700	230000	330000
Phenanthrene	(ug/kg)	350000	<110	270000	<11	<42	18000	120000	320000
Pyrene	(ug/kg)	160000	<110	110000	<11	<42	60000	54000	190000

Notes:

ug/kg (1)

Micrograms per kilogram

Provisional remediation objective provided by IEPA

No remediation objective has been established by the IEPA for this constituent for this exposure route

Not detected at the level identified

Analytical result exceeds one or more Tier 1 RLO